MECO®

POWERGUARD

1100.00 W

PG07   Max 10A

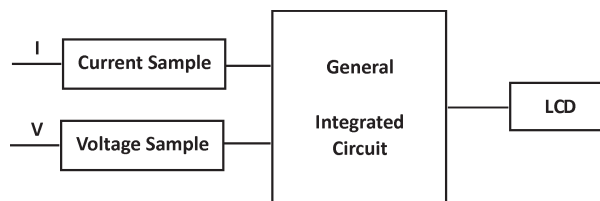▼   ▲   SET   OK

N   L

Power Guard
MODEL : PG07/PG08
USER MANUAL

Principle

Using high-integration microcomputer chips and special Energy Metering IC, with high-accuracy current sensor and LCD, this product can monitor electric equipments in every way. It can be used in monitoring domestic appliances such as air condition, fridge and microwave oven. This product is suitable for home, rental house, office, laboratory and various places.

I → Current Sample → General Integrated Circuit → LCD

V → Voltage Sample → General Integrated Circuit

Principle Block Schematic

1. Function

- ◆ Measures active energy;
- ◆ Total used energy increase when using power;
- ◆ Monitors instantaneous rms Voltage;
- ◆ Monitors instantaneous rms Current;
- ◆ Monitors active power;
- ◆ Monitors power factor (PG08 only);
- ◆ Monitors Frequency;
- ◆ Monitors Carbon emissions (Co_2);
- ◆ Record the total time of using energy;
- ◆ Warning when in peak load;
- ◆ Display on a big LCD.
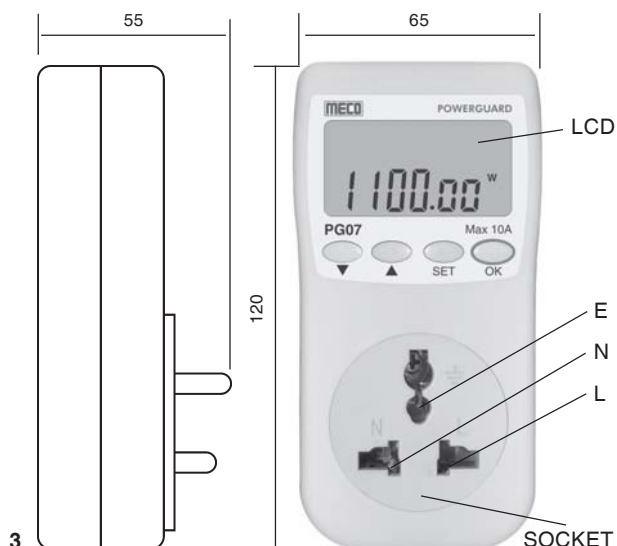
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2. Technical Specifications

- ◆ Standard   : BC17215-2003
- ◆ Specification   : 220V, 50Hz, 2.5~10A Max.
- ◆ Precision   : 1.0 class;
- ◆ Constant   : 6400imp/kWh;
- ◆ Consumption   : less than 1W;
- ◆ Weight   : 130gms (approx.);
- ◆ Size   : 120 × 65 × 55mm (approx.);
- ◆ Working temperature : 0⁰C to 45⁰C.

⚠ **Warning**

For load 10A usage for more than 10 minutes will damaged the instrument.

3. Outside Drawing

55   65

LCD

MECO   POWERGUARD

1100.00 W

PG07   Max 10A

▼   ▲   SET   OK

120

E
N
L

SOCKET

3

4. Handling and Use

1. Put Power Guard's plug into power socket, and then put electric equipment's plug into Power Guard's socket.
2. Values of total used energy, power, power factor (PG08), voltage, current, total using time, frequency and emissions of Co_2 are displayed on LCD.
3. Description for power-on : LCD will show active power value for a while and backlight will be light when power on for 5 seconds.
4. Description for button :
   4.1 "▼" "▲" Button

   Press "▼" to show power, power factor (PG08), current, voltage, frequency, energy usage time in total, energy consumption in total and emissions of Co_2 in sequence, and press "▲" to show them in reverse.

   After any one of this press, backlight will be lighted for approx 5 minutes.

   4.2 "SET" Button

   Hold "SET" button for 2 seconds to enter setting mode.

   4.3 "OK" Button

   Press "OK" button to confirm.

5. Alarm when in peak load and set the threshold

   5.1 Alarm when in peak load

   When electric equipment's active power value is over the alarm threshold, backlight will blink, and active power value shown in timely; after active power value is under the threshold, backlight blink will be off.

   5.2 Set the threshold

   Press "▼" or "▲" button to show power value on LCD, hold "SET" button for 2 seconds to enter setting mode (LCD will show "XXXX" W and the first "X" will

blink) press "OK" or "▼" / "▲" to adjust the number ("▼" to reduce, "▲" to increase). Press "OK" to confirm and continue to adjust the nest number. After confirming the 4 number, the set is finished and LCD show back to function.

The threshold value is 2200W. If the threshold is set over 2200W, LCD will display "Err1" for 3 seconds and return to the setting mode again. This function is mainly use to prompt peak load.

6. **Reset the total using time**

Press "▼" / "▲" button to show "total using time", hold "SET" button for 2 seconds to enter restting mode (the number on LCD will blink). Press "OK" button to reset the time and LCD show back to "total using time".

7. **Reset the energy**

Press "▼" / "▲" button to show "total used energy", hold "SET" button for 2 seconds to enter restting mode (the number on LCD will blink). Press "OK" button to reset the energy and Co_2 LCD show back to "total used energy".

8. **Description for LCD and symbol**

Code	Data Format	Unit	Data Name
01	XXXX.xx	W	Power
02	X.XXx	-	Power Factor (PG08 only)
03	XXXxx	mA	Current
04	XXX.xx	V	Voltage
05	XX.xx	Hz	Frequency
06	XXXXxx	Min	Total Usage Time
07	XXXX.xx	kWh	Total Used Energy
08	XXXX.xx	Kg	Co_2

9. **Specifications**

Functions	Input Range	Accuracy Class
RMS Voltage	195 ~ 265 Vrms	0.5
RMS Current	2.5 ~ 10 Arms	1
Active Power	0.2 ~ 1 W	<10
	1 ~ 5 W	5
	5 ~ 2200 W	1
Power Factor (PG08 only)	For : 0.2 ~ 5 W	>0.03 PF
	For : 5 ~ 10 W	<0.03 PF
	For : 10 ~ 2200 W	<0.01 PF
Active Energy	For : 5 ~ 2200 W	1
Energy Usage Time	Minutes	-
Applications	Teaching, Demonstration & Testing of Electrical Energy Saving of Household & Office Appliances. It can be used in Houses, Offices, Shops, Schools, Laboratories etc.	

10. **Transportation and Storage**

The product must be protected from radical impacting in transporting and unpacking, and transporting and storing according to GB/T15464-1995 (General-purpose specification for the packaging of instrumentation products). The product must be stored and kept on the trestle table with original package, and stack-height must be less than 8 layers. Keep the room clean. The temperature must be 0 to 45⁰C, relative humidity must be less than 85%, and make sure that there are no corrosive materials in the air.

Appendix
Display on LCD

605.00 W

1.00 o
(PG08 only)

2750 mA

220.00 V

50.10 Hz

0003 00

3.03 KWh

1.68 CO2 Kg

MECO ®

Certificate of Calibration

We hereby certify that this product has been calibrated and found to be in accordance with the applicable SPECIFICATIONS and STANDARDS.

Accuracies of the standard equipment used in this calibration are traceable to the National Standards.

MECO METERS PVT. LTD.

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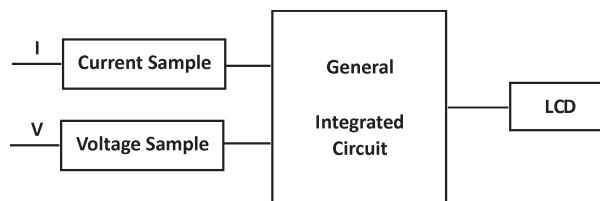
CHECKED BY : _____

DATE : _____

MODEL NO. : _____

PG07-08 : 28-09-2012

MECO®

MECO POWERGUARD

PG09 ● 220V   50Hz   Max 10A

KW/PF   V   A   EUT   KWh

Power Guard
MODEL : PG09/PG09H
USER MANUAL

Principle

Using high-integration microcomputer chips and special Energy Metering IC, with high-accuracy current sensor and LCD, this product can monitor electric equipments in every way. It can be used in monitoring domestic appliances such as air condition, fridge and microwave oven. This product is suitable for home, rental house, office, laboratory and various places.

Power Guard is with high measurement precision when used in low current consuming equipments. When the current power is less than 20W, the power measurement error is in ±0.01~0.1W, and the power factor measurement error is in ±0.001~0.01.

Principle Block Schematic

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1. Function

◆ Measures active energy;
◆ Total used energy increase when using power;
◆ Monitors instantaneous rms Voltage;
◆ Monitors instantaneous rms Current;
◆ Monitors active power;
◆ Monitors power factor;
◆ Record the total time of using energy;
◆ Warning when in peak load;
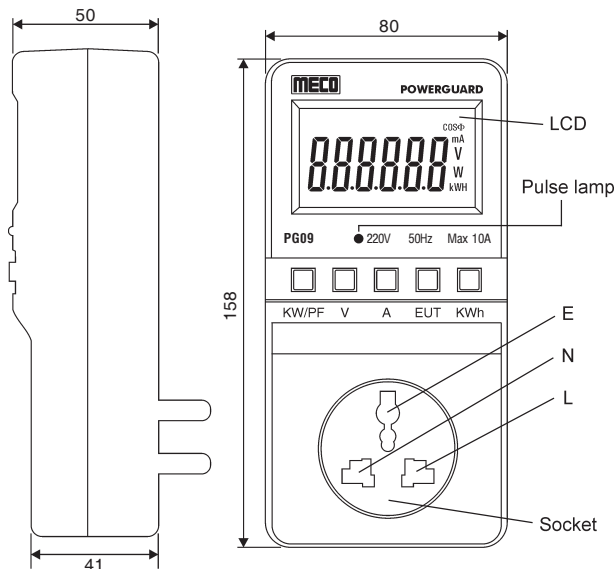◆ Display on a big LCD.

2. Technical Specifications

◆ Standard   : BC17215-2003
◆ Specification   : 220V, 50Hz, 2.5~10A (PG09)
                    220V, 50Hz, 2.5~15A (PG09H)
◆ Precision   : 1.0 class;
◆ Constant   : 6400imp/kWh;
◆ Consumption   : less than 0.8W;
◆ Weight   : 300gms (approx.);
◆ Size   : 158 × 80 × 50mm (approx.);
◆ Working temperature : -25 to 45^{0}C.

⚠ **Warning**
For load >10A~15A, usage for more than 10 minutes will damaged the instrument.

3. Outside Drawing

4. Handling and Use

1. Put Power Guard's plug into power socket, and then put electric equipment's plug into Power Guard's socket.
2. Values of total used energy, power, power factor, voltage, current, and energy usage time can be displayed on LCD.
3. Description for power-on : LCD will show active power value for one minute and backlight will be light when power on, And then show, power factor, voltage, current, energy usage time, total used energy, and active power value in cycle.
4. Description for button : Press "KW/PF" to show active

PG09-09H : 28-09-2012

power value and power factor one by one, and in real time.
Press "V" to show voltage value in real time.
Press "A" to show current value in real time.
Press "EUT" to show energy usage time in total.
To reset the energy usage time, press "EUT" continuously, than press "KWh" three times & press "V" within 5 sec.
Press "KWh" energy consumption in total, and in real time.
To reset the energy consumption, press "KWh" continuously, than press "EUT" three times & press "A" within 5 sec.
After any one of these press, Backlight will be lighted for 10 minutes.

5. Alarm when in peak load
When electric equipment's active power value is over the alarm threshold, backlight will blink, and active power value shown in timely; after active power value is under the threshold, backlight will be turn off. The threshold value is 2200W (PG09) & 3300W (PG09H). This function is mainly used to prompt peak load.

5. Description for LCD and symbol

Code	Data Format	Unit	Data Name
01	XXXX.XX	W	Power
02	X. XXX	-	Power Factor
03	XXX.XX	V	Voltage
04	XXXXX	mA	Current
05	XX.XX	YY.MM	Energy usage Time
06	XX.XX.XX	DD.HH.MM	Energy usage Time
07	XXXX.XX	kWh	Total Used Energy

6. Specifications

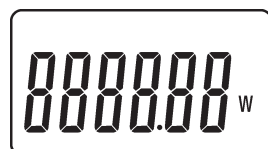| Functions	Input Range		Accuracy Class
RMS Voltage	195 ~ 265 Vrms		0.5
RMS Current	**PG09**	**PG09H**	
	0.02 ~ 10 Arms	0.15 ~ 15 Arms	1
Active Power	0.2 ~ 1W 1 ~ 5W 5 ~ 2200W	0.55 ~ 5W 5 ~ 20W 20 ~ 3300W	<10 5 1
Power Factor	For : 0.2 ~ 5W For : 5 ~ 10W For : 10 ~ 2200W	For : 0.55 ~ 10W For : 10 ~ 20W For : 20 ~ 3300W	>0.03 PF <0.03 PF <0.01 PF
Active Energy	For : 5 ~ 2200W	For : 30 ~ 3300W	1
Energy Usage Time (EUT)	Days/Hours/Minutes Years/Months		- -
Applications	Teaching, Demonstration & Testing of Electrical Energy Saving of Household & Office Appliances. It can be used in Houses, Offices, Shops, Schools, Laboratories etc.		

7. Transportation and Storage

The product must be protected from radical impacting in transporting and unpacking, and transporting and storing according to GB/T15464-1995 (General-purpose specification for the packaging of instrumentation products). The product must be stored and kept on the trestle table with original package, and stack-height must be less than 8 layers. Keep the room clean. The temperature must be 0 to 40⁰C, relative humidity must be less than 85%, and make sure that there are no corrosive materials in the air.

Appendix
Display on LCD

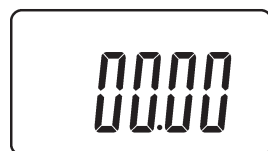Active Power

Power Factor

Voltage

Current

Total Using Time (YY.MM)

Total Using Time (DD.HH.MM)

Total Consumption

Certificate of Calibration

We hereby certify that this product has been calibrated and found to be in accordance with the applicable SPECIFICATIONS and STANDARDS.

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SR. NO.   : _____

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DATE   : _____

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PG09-09H : 28-09-2012